

Amanda Childress
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Team Photo # 1

My first team photo is shown below, and it is of an ooze tube. An ooze tube is a children's toy filled with a very viscous fluid. In the middle of the tube is a perpendicular plate with a hole in the middle of it. When the fluid moves through the hole many fluid phenomena's are seen. My picture shows three half bubbles inside of each other.



Figure 1: Post-Photoshop Photo

The physics of this phenomenon have to deal with the fluids surface tension property and the pressure differences between the bubbles. I will not be able to figure out what the surface tension of this fluid is without doing a test and breaking open the teacher's ooze tube. I have heard from the teacher and other students that it is quite rare to see three bubbles, but more commonly seen is two bubbles. It would be much harder to see this kind of phenomenon outside of an ooze tube because in an ooze tube the air and fluid is encased allowing the environment to stay a bit more stable; i.e. no wind, constant pressure, and constant dryness. [1]

Originally my team thought it would be nice to have a white backdrop and a halogen light source projected onto the ooze tube. I did not particularly like how the images came out. In my photo the light source was from the natural lighting through the windows and the classroom lights. I took this photo in class and this was the only time I was able to get three bubbles inside of each other – so I think this particular phenomenon is very hard to recreate. My suggestions are to be in a room of standard room temperature and just keep turning the ooze tube over and over. When the liquid is warm it runs like water,

and when the liquid is cold it runs like molasses. Also the little bubbles suspended all throughout the fluid can be filtered out if you let the ooze tube stay in one position undisturbed for 12 hours or so – but I think the little bubbles are essential in the fluid to recreate three bubbles inside of each other.

The only Photoshop editing that I did to my picture was: crop the photo, tilt the image slightly, and increase the color saturation.



Figure 2: Pre Photoshop Photo

I increased the saturation to make the photo more appealing and to not look so dull. I also cropped it to mostly show just the three bubbles, but then I thought the fluid flowing through the hole down was interesting too. In the table below I have the settings from my camera.

Table 1: Camera Settings & Specifications

Size of Field of View	Top to bottom – 6 in
Distance from object to lens	5 in
Lens focal length	4.28 mm
Aperture	f/2.4
Shutter Speed	1/20 sec
ISO	250

I had no control over what settings my camera was on because the picture was taken with my iPhone 4S. As you can see in the following table of pixel count, I cropped the picture quite a bit.

Table 2: Pixel Count

	Height	Width
Pre Photoshop	1024	768
Post Photoshop	465	483

Like I said before, this image is really hard to recreate and this picture I had to take on my phone in class, so obviously I wish I had been able to get pictures of it with my nice camera. I originally didn't like seeing the people and desks through the ooze tube but I played around with other pictures and it is essential to have to light carry through the ooze tube and not be blocked with a backdrop. Even white pieces of paper hindered seeing the phenomenon inside the tube! So I am very happy with how this photo turned out, the only difference that I would have done is to crop it a tad differently.

[1] Jones, Andrew. "Pressure Inside a Bubble – Anatomy of a Soap Bubble & Pressure Inside a Soap Bubble" About.com Physics. Website. Accessed April 2012.
<http://physics.about.com/od/physicsexperiments/a/surfacetension_2.htm>